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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,186	04/11/2005	Hauke Malz	268686USPCT	6307
22850 7590 02/07/2008 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER GOLOBOY, JAMES C	
			ART UNIT 1797	PAPER NUMBER
			NOTIFICATION DATE 02/07/2008	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/531,186		MALZ ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	James Goloboy		1797	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 April 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/11/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-3, 5, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitter (U.S. Pat. No. 4,960,808).

From column 3 line 31 through column 4 line 39, Schmitter discloses phenolic stabilizers for polymers, and in column 4 lines 40-42 Schmitter discloses that a mixture of stabilizers can be used. In column 3 lines 31-51 Schmitter discloses that one of the stabilizers is a dicarboxylate, and in column 4 lines 25-39 Schmitter discloses that another stabilizer can be a phosphite, preferably tris(2,4-di-tert-butylphenyl)phosphite, which is a reducing agent of trivalent phosphorus as recited in claims 3 and 11. In column 2 lines 8-12, Schmitter discloses that the stabilizers are used to stabilize polyketone polymers, which are plastics as recited in claims 4 and 13. Schmitter does not disclose a dicarboxylate with the specific formulas recited in claims 1-2.

In column 3 lines 47-51, and the sample structure at the bottom of column 3, Schmitter teaches that the R groups of the dicarboxylate are preferably t-butyl groups, matching the structure of claims 1-2. In column 3 lines 41-45, Schmitter teaches that a is preferably 2, matching the structure of claims 1-2, that b can be 2 to 6, encompassing the structures recited in claims 1-2 (b = 2 in claim 1 and b = 4 in claim 2), and more specifically that b is preferably 2, matching the structure of claim 1. Schmitter additionally teaches that n is preferably 3, meeting the condition of claims 1-2. The mixture of the preferred dicarboxylates of Schmitter with the preferred phosphite of Schmitter meets the limitations of claims 1-3 and 11. While Schmitter does not disclose the Hazen number of the mixture, it is clear that the mixture, meeting the compositional limitations of the claim, must have a Hazen number meeting the claim.

It would have been obvious to one of ordinary skill in the art to select the phenolic dicarboxylates and phosphites of Schmitter described above as Schmitter teaches that

they are preferred embodiments, and it would have been obvious to use them as a mixture as Schmitter teaches that they can be used as a mixture.

4. Claims 1-2, 4, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitter in view of Collonge (U.S. Pat. No. 4,316,996).

The discussion of Schmitter in paragraph 3 above is incorporated here by reference. Schmitter discloses a phenolic stabilizer, but does not disclose a composition comprising the stabilizer and a reducing agent in the ratios recited in claims 4 and 12.

Collonge, in column 4 lines 63-67, discloses that the addition of reducing agents prior to filtration in the preparation of phenolic antioxidants significantly reduces the discoloration of organic materials stabilized with the antioxidants. In column 5 lines 16-22, Collonge discloses that the reducing agents are added to the reaction mixture prior to filtration in an amount of 2.7% by weight. As the reaction mixture consists almost entirely of the phenolic antioxidant, the ratio of stabilizer to reducing agent will therefore fall within the ranges recited in claims 4 and 12, and the mixture of the antioxidant of Schmitter and the reducing agents of Collonge will meet the limitations of claims 1-2.

It would have been obvious to one of ordinary skill in the art to include the reducing agents of Collonge to the phenolic stabilizer of Schmitter, in order to reduce discoloration, as taught in column 4 lines 63-67 and column 5 lines 25-59 of Collonge.

5. Claims 6-10 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitter in view of Collonge and Dexter (U.S. Pat. No. 3,644,482).

The discussion of Schmitter in paragraph 3 above is incorporated here by reference. Schmitter discloses a phenolic stabilizer, but does not disclose a method of preparing the stabilizer.

Dexter, in column 6 lines 3-19, discloses the preparation of a phenolic stabilizer with a similar structure to that of Schmitter. The stabilizer is prepared by esterification, as recited in claim 6, and the preparation involves the use of a carboxylic acid meeting the limitations of claim 7. If the ethylene glycol in the process of Dexter is replaced with a polyethylene glycol or polybutylene glycol in order to make the stabilizers of Schmitter, the preparation will use an alcohol meeting the limitations of claim 8. Dexter does not disclose the use of a reducing agent in the preparation of the stabilizers. Collonge, in column 4 lines 63-67, discloses that the addition of reducing agents in the preparation of phenolic antioxidants significantly reduces the discoloration of organic materials stabilized with the antioxidants. In column 5 lines 16-22, Collonge discloses that the reducing agents are added to the reaction mixture in an amount of 2.7% by weight, within the range recited in claim 9. The preparation of the phenolic stabilizer of Schmitter by the process of Dexter and Collonge therefore meets the limitations of claims 6-9, and the product formed by the process meets the limitations of claim 10.

It would have been obvious to one of ordinary skill in the art to produce the phenolic stabilizer of Schmitter by the process of Dexter and Collonge, as Dexter teaches that esterification is a suitable method of preparing phenolic antioxidants, and Collonge teaches that the addition of reducing agents to the reaction mixture reduces discoloration of organic materials stabilized with the antioxidant.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Larson (U.S. Pat. No. 3,535,249) discloses antioxidant compositions comprising a phenolic antioxidant and a reducing agent.

Katz (U.S. Pat. No. 5,234,702) discloses that ascorbic acid, a reducing agent, can regenerate phenolic antioxidants.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Goloboy whose telephone number is 571-272-2476. The examiner can normally be reached on M-F 9-5:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:  
10/531,186  
Art Unit: 1797

Page 7

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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